CYBRILLA

Duration: 60 mins

Instructions:

- Use a programming language of your choice
- Don't use any third party libraries or APIs

Coding Challenge Questions:

Problem 1:

You are given an array A of N integers. You want to choose some integers from the array subject to the condition that the number of distinct integers chosen **should not exceed K**. Your task is to maximize the sum of chosen numbers.

Input format:

- The first line of the test case contains two space-separated integers N and K denoting the length of the array and the maximum number of distinct integers you can choose.
- The second line contains N space-separated integers denoting the integer array A.

Output format:
For the test case, print the maximum sum you can obtain by choosing some elements such that the number of distinct integers chosen is at most K . If you cannot choose any element, output 0.

Sample 1:

Input:
4 1
3 -1 2 5

Output:
5

Explanation:
In the test case, we have N = 4, K = 1, A = [3, −1, 2, 5]. Since we can choose at most 1 distinct integer, we choose 5. The sum is also 5 and we output it.

Sample 2:
Input:
4 2
2 1 2 5

Output:
9

Explanation:
In the test case, we have N = 4, K = 2, A = [2, 1, 2, 5]. We need to choose at most 2 distinct integers, we choose 2, 2, 5. Note that the condition is choosing at most K distinct integers. So we can choose a repeated number as many times as we want. The sum is 2 + 2 + 5 = 9 and we output it.

Problem 2:

Write an Algorithm to find all unique triplets in the arrays which gives the sum of zero.
Given an array S of *n* integers, are there elements a, b, c in S such that a + b + c = 0. Solution must not contain duplicate triplets.

Sample:
Input:
[-1, 0, 1, 2, -1, 4]

Output:
-1, 0, 1
-1, 2, -1

Note:
- Print each triplet in a separate line.

Problem 3:

Write a program to find if a string is a palindrome. Print **true** if the string is a palindrome and print **false** if it is not.

Sample 1:
Input:
Anna

Output:
true

Sample 2:
Input:
Hello

Output:
false

Note:
The inputs are case insensitive, so **level** and **Level** are the same inputs.